

## MODULE: REINFORCEMENT

### STEP-BY-STEP INSTRUCTIONS: TOKEN ECONOMY

#### Step 1. Identify the Target Skill/Behavior

Team members identify a target skill/behavior for a learner with ASD that they would like to increase.

1. Team members define the target skill/behavior in observable and measurable terms.

The following are examples of target skills/behaviors that may be addressed using token economy programs.

*Example:* Sarah will raise her hand during English class to request/answer a question four out of five times for at least three days.

Describing the criterion in measurable and observable terms allows team members to collect accurate and reliable baseline data, distribute tokens when the learner uses the target skill/behavior correctly, and ensure that all staff members know what the target skill/behavior looks like so that tokens can be provided consistently across classes and activities. Furthermore, a clearly described target skill/behavior helps learners understand exactly what behavior is expected of them in certain settings and situations.

#### Step 2. Collect Baseline Data

Once the target skill/behavior has been identified, team members collect baseline data to determine how often the learner with ASD is using the target skill/behavior.

1. Team members measure a learner's use of the target skill/behavior before implementing a token economy program by collecting one of the following:
  - a. *Frequency data.* Frequency data document how often a learner engages in a particular behavior. Two methods are used to collect frequency data: time sampling and event sampling. With *time sampling*, data on a particular behavior are collected after a certain length of time (e.g., every 5 minutes). If a learner is engaging in the behavior at that time, team members record this on the data sheet. This sampling technique is best used to monitor high-frequency behaviors such as drooling and staying seated during class. *Event sampling* is used to record every instance of the behavior and typically focuses on low-frequency behaviors such as taking a bite of food, hitting, and using the toilet. Both sampling techniques are used to evaluate patterns of learners' behavior over a period of days or weeks. Tables 12 and 13 provide examples of both frequency data collection methods.

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Table 12  
*Example of Time Sampling Data Collection Sheet*

Date	Time						Total	Before, during, or after reinforcement
	9:00	9:05	9:10	9:15	9:20	9:25		
7/26/08	X		X				2	<i>Before</i>
7/27/08	X	X					2	<i>Before</i>
7/28/08	X	X		X		X	4	<i>Before</i>
7/29/08		X	X	X		X	4	<i>Before</i>

Table 13  
*Example of Event Sampling Data Collection Sheet*

Date	Takes toy from peer	Total	Before, during, or after reinforcement
7/26/08	X	1	<i>Before</i>
7/27/08	X	1	<i>Before</i>
7/28/08	X	1	<i>Before</i>
7/29/08	XXX	3	<i>Before</i>

- b. *Duration data.* Duration data are used to record how long a learner engages in a particular behavior. For example, a teacher might collect data on how long a learner with ASD stays in his seat or how long a young learner stays engaged in parallel play. Table 14 provides an example of a duration data collection sheet.

Table 14  
*Example of Duration Data Collection Sheet for Remaining in Seat*

Date	Start time	End time	Total minutes	Setting/activity	Before, during, or after reinforcement
7/26/08	9:00	9:01	1	<i>English</i>	<i>Before</i>
7/27/08	9:05	9:06	1	<i>Math</i>	<i>Before</i>
7/28/08	9:00	9:02	2	<i>Science</i>	<i>Before</i>
7/29/08	9:10	9:12	2	<i>Resource room</i>	<i>Before</i>

Baseline data give team members a starting point from which to evaluate whether the target skill/behavior increases as a result of a token economy program.

2. Team members collect baseline data for a minimum of four days before implementing a token economy program.
3. Team members collect baseline data in numerous settings and/or activities.

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It often is useful to have more than one team member collect baseline data over the course of several days to compare findings. Also, by collecting data across several days in multiple settings, team members can potentially recognize patterns of behavior. For example, does the learner use the target skill/behavior more often in one setting than another? This kind of information helps identify activities or settings where a token economy program can be used to increase the target skill/behavior.

#### Step 3. Identify Reinforcers

Team members identify reinforcers for learners with ASD. Reinforcers are anything that increases the likelihood that the target skill/behavior is used in the future. This is important because learning will not take place unless reinforcers are motivating to the learner with ASD. Team members should keep in mind that many of the reinforcers used with typically developing students are not motivating to learners with ASD (e.g., social praise, high fives). It is essential that team members identify reinforcers for each learner with ASD that are sufficiently motivating and lead to an increase in the target skill/behavior.

Potential reinforcers that may be used with a token economy program include the following:

- *Activity reinforcers*: could include play activities, access to computer games, additional free time, and outings.
- *Tangible/edible reinforcers*: include objects that a learner with ASD can acquire, such as stickers, toys, magazines, pencils, candy, and popcorn.
- *Sensory reinforcers* are often motivating to learners with ASD. However, these types of reinforcers should be used only when (a) the teacher can control access to them, (b) the reinforcer is deemed acceptable and appropriate for the setting, and (c) no other reinforcer is as motivating to the learner with ASD. Examples include looking at a kaleidoscope, blowing bubbles, playing with a squishy ball, sitting in a rocking chair, or rubbing hand lotion on hands.

The following activities may be used to identify reinforcers for individual learners with ASD.

1. Team members consider the age of the learner with ASD.

It is particularly important to take into account the learner's age when identifying potential reinforcers. For example, it would probably not be appropriate for a sixth

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grader with ASD to earn a Thomas train when he acquires enough tokens. This kind of reinforcer might best be saved for times when the learner receives services in a resource room with other learners with ASD or disabilities.

2. Team members observe the learner in natural settings and identify activities, objects, and foods that the learner selects when allowed free choice.
3. Team members identify potential reinforcers by asking the learner what she would like to work for (if appropriate).
4. Team members identify potential reinforcers by interviewing parents or other staff to identify reinforcers that have worked in the past.
5. Team members identify potential reinforcers by conducting a reinforcer sampling.

Reinforcer sampling helps team members identify activities and materials that are motivating to the learner and that might be used to teach new skills. This type of procedure usually takes about 5 minutes and involves the steps listed below.

- Sit in front of the learner and hold up two items and say to the learner, "Pick one."
  - Wait 10 seconds for the learner to indicate his choice in whatever manner is appropriate (e.g., reaching, pointing, verbalizing, using a switch or augmentative communication device).
  - Place the selected and nonselected objects in their respective containers (i.e., one to hold the learner's selections, one to hold the materials not selected).
  - Continue the first three steps until half the objects presented are chosen (Mason & Egel, 1995).
6. Team members complete a reinforcer checklist to identify potential reinforcers for a learner with ASD.

A reinforcer checklist may be used with learners with ASD across the age range to identify their least and most desirable reinforcers. Team members simply check "yes" or "no" next to a variety of reinforcers. Results can then be used to create a reinforcer menu. Table 15 provides an example reinforcer sampling menu that may be used to identify reinforcers for individual learners with ASD.

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Table 15  
*Sample Reinforcer Menu Sampling*

<b>Example: Elementary Reinforcer Menu</b>	
Learner name: _____	
Target skill/behavior: _____	
Instructions: Ask individual learners to place a check (✓) next to at least eight items/activities they would like to earn. Read the list to non-readers and help them mark the items they select.	
<input type="checkbox"/> 1. Bubbles	<input type="checkbox"/> 7. New comic book
<input type="checkbox"/> 2. Ice cream	<input type="checkbox"/> 8. Spider man pencils
<input type="checkbox"/> 3. Coloring book	<input type="checkbox"/> 9. Pizza for lunch
<input type="checkbox"/> 4. Extra computer time	<input type="checkbox"/> 10. Stickers
<input type="checkbox"/> 5. Squishy ball	<input type="checkbox"/> 11. Play dough
<input type="checkbox"/> 6. Lollipop	<input type="checkbox"/> 12. Bookmark with string

**Step 4. Create a Reinforcer Menu**

1. Team members create a menu of possible reinforcers listed by name (if the learner with ASD can read) or by picture for an individual learner with ASD.

This allows team members to organize potential reinforcers in an orderly manner. Potential reinforcers may be organized according to categories such as social reinforcers, activity reinforcers, and sensory reinforcers.

Tables 16 and 17 illustrate two different reinforcer menus that could be used with learners with ASD.

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Table 16  
*Example of Picture Reinforcer Menu*

 <p><b>NEW COMPUTER GAME</b></p>	 <p><b>PLAY BASKETBALL FOR 10 MINUTES</b></p>
 <p><b>SIT IN ROCKING CHAIR FOR 10 MINUTES</b></p>	 <p><b>NEW TRAIN</b></p>

Table 17  
*Example of Written Reinforcer Menu*

<p><b>If I earn 10 tokens, I would like:</b></p>
<p>Circle choice for this class</p>
<ul style="list-style-type: none"> <li>• Ten minutes of extra play time on the computer</li> </ul>
<ul style="list-style-type: none"> <li>• Extra recess time</li> </ul>
<ul style="list-style-type: none"> <li>• New comic book</li> </ul>
<ul style="list-style-type: none"> <li>• Jar of bubbles</li> </ul>
<ul style="list-style-type: none"> <li>• Erase the chalkboard</li> </ul>

Adapted from Aspy and Grossman (2007)

**Step 5. Establish a Token Economy Program**

Team members identify the medium of exchange. That is, they determine what will serve as tokens for the program.

1. Team members identify tokens that are:
  - a. attractive,
  - b. easy to carry, and

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- c. easy to dispense.

Virtually anything that is visible and countable may be used as a token in this type of reinforcement program. Examples include poker chips, stickers, tally marks, pennies, marbles in a jar, pictures of the target skill/behavior on a Velcro board, and play money.

2. The identified token is age and developmentally appropriate for the learner with ASD.

It is particularly important to take into account the learner's age and developmental level when identifying tokens. For example, it might be more appropriate to use a checklist or play money with a higher functioning learner with ASD. On the other hand, a teacher might use a chart where learners place pictures of the target skill/behavior on Velcro pieces each time he uses the target skill/behavior with learners who do not yet understand the concept of money.

3. Team members set up a system for exchanging tokens that includes:
  - a. "a bank" to keep track of tokens earned and spent,
  - b. a time and place for purchasing reinforcers from the reinforcer menu, and
  - c. the monetary value of each item on the reinforcer menu.



It is often useful to create a "store" in an area of the classroom that contains the "bank," the reinforcer menu, and the desired items. For example, a teacher could set up an area in the back corner of the classroom where a poster-sized reinforcer menu is hanging on the wall and displays the "business hours" (e.g., when tokens can be exchanged for an item on the reinforcer menu). A teacher might decide that learners can exchange tokens daily, weekly, or as soon as the designated number of tokens has been acquired. Again, this should be based upon a learner's age and developmental level. It is often beneficial to provide learners with frequent opportunities to purchase reinforcers at the beginning of the program to establish a clear understanding of how a token economy program works and to maintain motivation.

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A small table in the designated area may display the desired items and/or pictures of potential outings that the learner with ASD wants to work for. The teacher might also include the “price” next to each item on the reinforcer menu. The token value of each reinforcer should be based upon its monetary value or demand. For example, if the reinforcer is expensive (e.g., new computer game) or highly attractive (e.g., trip to pizza shop), the token value should be higher.

When first setting up the program, it is important to balance the learner’s demand for the item with his/her ability to acquire the skill quickly and efficiently. For instance, it would be wise to initially include a number of items on the reinforcer menu that can be easily acquired based upon the learner’s current skills. As learners gain mastery of the target skill/behavior, more expensive and highly attractive items that might take some time to acquire can be added to the reinforcer menu.

***Step 6. Implement a Token Economy Program***

1. Team members clearly describe to learners with ASD:
  - a. the target skill/behavior,
  - b. how the token economy program works, and
  - c. how many tokens must be earned before they receive an item from the reinforcer menu.

Team members clearly describe the behavior to learners with ASD in simple terms so that they know what is expected of them. Learners must also be told when and where the token economy program will be in effect. For instance, will it be used only in English class and the resource room? Or will it be used in all settings across the day (for learners who receive services in inclusive programs)?

2. Team members display the rules for earning and exchanging tokens.

This posting should include a clear description of the target skill/behavior, rules for appropriate behavior, and how tokens can be earned. Table 18 offers an example of a rules poster.

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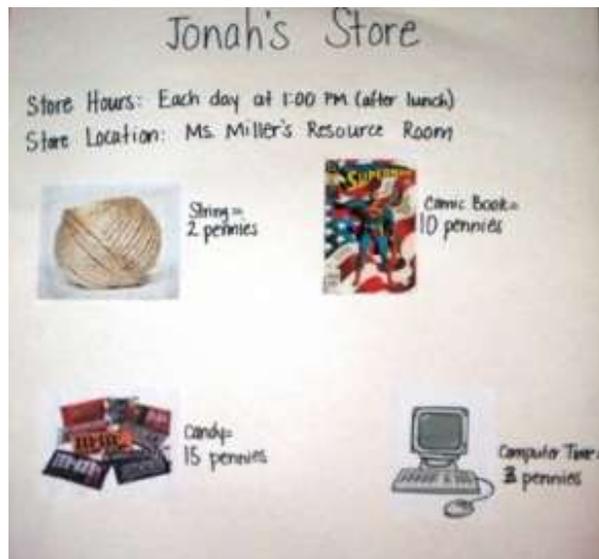


Table 18  
Example of Rules Poster

<p><b>I will stay in my seat for 5 minutes without talking during English class.</b></p>
<p><b>Classroom Rules</b></p> <ol style="list-style-type: none"><li>1. I will stay seated in my chair during English class.</li><li>2. I will not talk while the teacher is talking.</li><li>3. When the timer rings, I will get a chip.</li></ol>

It also might be necessary to engage in a role play with learners so that they more fully understand what is expected of them by going over the rules and acting out the sequence of engaging in the target skill/behavior, getting a token, and choosing an item from the reinforcer menu.

3. When first starting the token economy program, team members immediately provide a token to the learner with ASD each time the target skill/behavior is displayed.

Initially, team members use a continuous schedule of reinforcement in which each instance of the target skill/behavior is immediately rewarded with a token. This helps the learner with ASD establish a relationship between using the target skill/behavior and receiving a token.

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4. Team members describe the target skill/behavior after the learner uses it correctly.

*Example:* A teacher might say, “You stayed in your seat for 5 minutes. Now you can get a token.”

5. Team members pair giving the token to the learner with ASD with social reinforcement (e.g., praise, teacher attention).

Because many learners with ASD have not yet learned the value of social reinforcers, team members must teach them to like these types of reinforcers by initially pairing a social reinforcer with the token. As learners with ASD become more motivated by social reinforcers, teachers/team members fade the use of the tokens.

6. Team members allow the learner with ASD to select a desired object, activity, or food from the reinforcer menu when the designated number of tokens has been acquired.

Learners may also be given a “my choice” option on the reinforcer menu whereby they are able to engage in desired activities after using the target skill/behavior. This is particularly useful in instances in which learners often select a reinforcer before the activity but change their minds after the activity is complete. Including this option on the reinforcer menu may combat potential problems that might arise in these situations.

7. Team members make adjustments to a learner’s reinforcer menu to maintain motivation.

To maintain a learner’s interest and motivation, team members periodically adjust prices and rotate items on the reinforcer menu to reflect a learner’s acquisition of the target skill/ behavior as well as demand for a particular item. For example, a learner might become less motivated by a lower-priced item because he is able to gain access to it easily as he becomes more proficient at using the target skill/behavior. Therefore, a teacher might include some additional lower priced items or increase the price of all of the items so that the learner stays motivated to acquire some of the higher priced items.

8. Team members reward the target skill/behavior consistently across settings.

The success of the token economy program is dependent upon a number of factors, including team member implementation. It is essential that all team members who have frequent contact with the learner with ASD be familiar with the token economy program and how to implement it in a variety of settings. This will ensure that learners are being reinforced appropriately and thus acquiring the target skill/behavior.

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9. Team members fade the use of tokens as the learner starts using the target skill/behavior independently.

As learners with ASD begin to use the target skill/behavior more frequently, team members gradually decrease the availability of the tokens. This is done by not reinforcing every instance of the target skill/behavior. For example, a teacher might provide the learner with ASD with a token every third time he uses the target skill/behavior. The target skill/behavior is reinforced on other occasions by providing social reinforcement (e.g., verbal praise, pat on the back, high five).

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**Step 7. Monitor Learner Progress**

Changes in behavior are recorded daily on the data collection sheets that were used during the baseline data collection phase. Progress monitoring data are used to measure a learner's acquisition of the target skill/behavior as well as the effectiveness of the token economy program.

1. Team members use progress monitoring data to determine the learner's mastery of the target skill/behavior.
2. Team members use progress monitoring data to adjust the program when problems arise or if the target skill/behavior is not increasing.

The data collection sheets that were used before the intervention began are also used to monitor learner progress. By using the same data collection sheets, team members are able to track a learner's use of the target skill/behavior before and after a token economy program is implemented. The data collection sheets in Tables 19 and 20 provide examples of how team members can use these data sheets before, during, and after intervention.

Table 19  
*Example of Time Sampling Data Collection Sheet*

Date	Time							Before, during, or after reinforcement
	9:00	9:05	9:10	9:15	9:20	9:25	Total	
7/26/08	X		X				2	<i>Before</i>
7/27/08	X	X					2	<i>Before</i>
7/28/08	X	X		X		X	4	<i>Before</i>
7/29/08		X	X	X		X	4	<i>Before</i>
7/30/08	X	X	X	X	X		5	<i>During</i>
7/31/08	X		X	X	X	X	5	<i>During</i>
8/01/08	X	X	X	X	X	X	6	<i>During</i>

Table 20  
*Example of Event Sampling Data Collection Sheet*

Date	Takes toy from peer	Total	Before, during, or after reinforcement
7/26/08	X	1	<i>Before</i>
7/27/08	X	1	<i>Before</i>
7/28/08	X	1	<i>Before</i>
7/29/08	XXX	3	<i>Before</i>
7/30/08	XX	2	<i>During</i>
7/31/08	XXX	3	<i>During</i>

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8/01/08	XXXX	4	<i>During</i>
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Table 21 displays a list of potential problems and solutions when using token economy programs.

Table 21  
*Potential Problems and Solutions*

<b>Problem</b>	<b>Description</b>	<b>Solution</b>
Unequal pricing of reinforcers	This happens when reinforcers are priced too low, allowing learners to earn many reinforcers in a short period of time. Alternatively, reinforcers may be priced too high, resulting in learners giving up.	Role play with learner to demonstrate the details of the program. For example, a teacher might role play how to “save” tokens to get a higher-priced item.
Token hoarding	Learners may accumulate large numbers of tokens and assume that they do not have to use the target skill/behavior or behave appropriately until the tokens run out. Hoarding may also result in a learner purchasing a large number of reinforcers in one day.	<ul style="list-style-type: none"> <li>• Place expiration dates on tokens.</li> <li>• Have a reinforcer sale in which all items are placed at a lower price. This may decrease a learner’s desire to hoard tokens.</li> </ul>
Behavior deteriorates after fading tokens	May be a result of fading tokens too quickly.	<ul style="list-style-type: none"> <li>• Go back to a brief period of continuous reinforcement and then try a smaller ratio to fade tokens (e.g., every two or three hand raises to get a token).</li> <li>• Provide praise when giving a token.</li> <li>• Immediately reward behavior with token.</li> <li>• Offer opportunities to exchange tokens more frequently at the beginning of the program.</li> </ul>